

On a New Variable Star, ι Andromedæ. By J. E. Gore, Esq.

From my own observations during the last three and a half years I am confident that this star is variable to the extent of about half a magnitude. It is sometimes distinctly *brighter* than κ *Andromedæ*, and sometimes quite as distinctly *fainter*. The star has been estimated 4 mag., by most of the authorities, but it was rated as low as 7 mag. by Bradley and Piazzini, and it is 6 mag. in Harding's *Atlas*. D'Agelet rated it once 3-4 mag., and once 7 mag. Heis gives ι 4 mag. and κ 4-5 mag. The following are my observations:—

- May 1875. ι very slightly fainter than κ *Andromedæ*.
- Aug. 1875. Same relative brilliancy.
- Jan. 30, 1876. Very slightly brighter than κ .
- Oct. 1876. A little less than κ (about $\frac{1}{4}$ mag.)
- Dec. 13, 1876. ι slightly brighter than κ .
- Feb. 10, 1877. ι slightly but distinctly brighter than κ *Andromedæ*.
- Feb. 16, 1877. ι and κ almost exactly equal.
- Aug. 4, 1877. ι very slightly less than κ .
- Aug. 23, 1877. ι almost exactly equal to κ —during totality of lunar eclipse.
- Aug. 31, 1877. ι slightly, but decidedly, less than κ .
- Oct. 30, 1878. ι only just perceptibly less than κ .

I have not been able to determine the period, but it would seem to be tolerably short.

Dromard, Co. Sligo,
November 19, 1878.

On a Variable Diaphragm for use in Solar and Sidereal Observations. By F. W. Levander, Esq.

The instrument which I have the honour to bring to the notice of the Society had its origin in a desire on my part to devise a plan which should possess most, if not all, of the advantages of a Dawes' eye-piece, but capable of being produced at a smaller cost. It consists of an adapter to slide into the tube, as an ordinary eye-piece, and of a draw-tube to receive any eye-piece; between these there is a diaphragm, which, by one motion of the milled screw, is capable of being opened to the greatest extent required, or of being entirely closed. For solar work a draw-tube slides in such a manner that the interchangeable dark glasses with which it is furnished are at some distance within the focus of the object-glass. To prevent time being lost during an observation by interchanging these, it was proposed to adopt a revolving disk of dark glasses, as in Dawes' instrument; but the use, which has been kindly suggested, of a neutral tint wedge is,

I think, the best plan. By these means the light can be diminished to any extent, and with the diaphragm any part of the solar disk can be isolated and examined.

The instrument will also be found to be of great use in examining or detecting faint points of light when near brighter objects, as double stars of very diverse magnitudes, faint satellites of planets, lunar formations, &c., by reducing the glare of the surroundings and obviating the inconvenience of using the edge of the object-glass or speculum or the introduction of a field-bar. It also serves for measuring the vanishing point of stars, for testing magnitudes.

The screw-head is divided into equal parts, and, by noticing the reading when a particular observation was made, it may be recovered—under similar atmospheric conditions—at a future time. By a simple arrangement, the diaphragm may be placed out of the centre, so that, by revolving the instrument, the space round an object in the centre of the field of view may be examined.

I have to thank Messrs. Horne & Thornthwaite for the care with which they have carried out my design.

7 Chalcot Crescent, Regent's Park, N.W.,
December 11, 1878.

Explanation by Captain Bigg-Wither in regard to his Observation of the Transit of Venus, see Monthly Notices, Vol. xxxviii., foot-note, p. 433.

The longitude ($4^{\text{h}} 48^{\text{m}} 1^{\text{s}}.8 \text{ E.}$) given for Mooltan was not taken from the survey, but was the most probable mean of the results of 15 occultations of stars by the Moon; so that the correction of $+2^{\text{s}}.3$ made by Captain Tupman is inadmissible. The local time for all these observations, as well as for the Transit of *Venus*, was obtained by a 24-inch transit instrument and a sidereal chronometer, and was in every case known certainly within half a second of the truth. The occultations were observed with the same telescope as that used for the Transit of *Venus*, and were all taken from the "Elements" in the *Nautical Almanac*; they were reduced, using the Moon's tabular places as given in the *Nautical Almanac*.

Mooltan,
December 9, 1878.

ERRATA.

P. 37, line a, col. E of Table II., insert 581.

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